

What Is Claimed Is:

1. A method of driving a liquid crystal display, comprising:
setting at least two modulated data;
deriving a plurality of modulated data bands including the at least two modulated data centering a gray scale that is approximate to a gray scale value of source data; and carrying out first and second approximations in two directions perpendicular to each other within the modulated data bands to derive unregistered modulated data positioned between the modulated data, thereby modulating the source data.

2. The method according to claim 1, further comprising:
dividing the source data into most significant bits and least significant bits; and
delaying each of the most significant bits and the least significant bits for a frame period.

3. The method according to claim 2, further comprising, comparing the most significant bits of a current frame with those of the delayed frame within a look-up table registered with the modulated data to derive the modulated data bands in accordance with the compared result.

4. The method according to claim 1, wherein the carrying out first and second approximations includes:

carrying out the first approximation using current least significant bits along a horizontal axis within the modulated data bands to derive two first approximate values existing on the horizontal axis; and

carrying out the second approximation using previous least significant bits on a line between the two first approximate values to derive the unregistered modulated data.

5. The method according to claim 1, wherein the carrying out first and second approximations includes:

carrying out the first approximation using previous least significant bits along a vertical axis within the modulated data bands to derive two first approximate values existing on the

vertical axis; and

carrying out the second approximation using current least significant bits on a line between the two first approximate values to derive the unregistered modulated data.

6. A driving apparatus for driving a liquid crystal display, comprising:

a look-up table having at least two registered modulated data and deriving a plurality of modulated data bands including the at least two modulated data centering a gray scale that is approximate to a gray scale value of source data; and

a modulator approximating in two directions perpendicular to each other within the modulated data bands to derive unregistered modulated data positioned between the modulated data, thereby modulating the source data.

7. The driving apparatus according to claim 6, further comprising:

a first frame memory delaying most significant bits of the source data; and

a second frame memory delaying least significant bits of the source data.

8. The driving apparatus according to claim 7, wherein the delayed most significant bits are compared with non-delayed most significant bits within a look-up table registered with the modulated data to derive the modulated data bands in accordance with the compared result.

9. The driving apparatus according to claim 6, wherein the modulator includes:

a first approximation processor carrying out a first approximation using current least significant bits along a horizontal axis within the modulated data bands to derive two first approximate values existing on the horizontal axis; and

a second approximation processor carrying out a second approximation using previous least significant bits on a line between the two first approximate values to derive the unregistered modulated data.

10. The driving apparatus according to claim 6, wherein the modulator includes:

a first approximation processor carrying out a first approximation using previous least significant bits along a vertical axis within the modulated data bands to derive two first approximate values existing on the vertical axis; and

a second approximation processor carrying out a second approximation using current least significant bits on a line between the two first approximate values to derive the unregistered modulated data.

11. The driving apparatus according to claim 6, further comprising:

a data driver applying data modulated by using the modulator to the liquid crystal display;

a gate driver applying a scanning signal to the liquid crystal display; and

a timing controller applying the source data to the modulator and controlling the data driver and the gate driver.

12. The driving apparatus according to claim 6, further comprising a single frame memory delaying both most significant bit of the source data and least most significant bit of the source data.

13. The driving apparatus according to claim 6, wherein the modulator includes a single approximation processor carrying out a first approximation using current least significant bits along a horizontal axis within the modulated data bands to derive two first approximate values existing on the horizontal axis, and a second approximation using previous least significant bits on a line between the two first approximate values to derive the unregistered modulated data.

14. The driving apparatus according to claim 6, wherein the modulator includes:

a first approximation processor carrying out a first approximation using previous least significant bits along a vertical axis within the modulated data bands to derive two first approximate values existing on the vertical axis; and

a second approximation processor carrying out a second approximation using current least significant bits on a line between the two first approximate values to derive the unregistered modulated data.

15. A liquid crystal display, comprising:

a liquid crystal display panel displaying images;

a look-up table having at least two registered modulated data and deriving a plurality of modulated data bands including the at least two modulated data centering a gray scale that is approximate to a gray scale value of source data; and

a modulator approximating in two directions perpendicular to each other within the modulated data bands to derive unregistered modulated data positioned between the modulated data, thereby modulating the source data.